OUTSTANDING EPA COMMENTS ON
REVISED STREAMLINED REMEDIAL INVESTION/FEASIBILITY STUDY
REPORT FOR OPERABLE UNIT 1 (OU1)
SOUTH DAYTON DUMP AND LANDFILL SITE
MORAINE, OHIO
JUNE 2011

NOTE: Page references are based on the PDF version of the report. Outstanding comment numbers based on EPA's May 10, 2011 comments.

1. Comment was not addressed as directed. For the comment reference to implications regarding the remedial design, CRA referenced text in Section 1.2.3: "Any water in the Large and Small Ponds would be pumped immediately prior to cap construction. As both the Large and Small Ponds are shallow, and typically dry during summer months, substantial quantities of water would not be expected. Fill meeting the appropriate criteria would be used to backfill the Large and Small Ponds to a consistent grade to facilitate cap construction. Any water pumped from the Large and Small Ponds would be tested prior to disposal." This statement conflicts with EPA's requested revision that the large pond is mostly wet but occasionally dry.

July 2010 Comment 2. Modifications acceptable – as long as implications of ponded water and/or leachate in these areas which are within the MSW-capped area are addressed later in FS, including specifics.

(ORIGINAL COMMENT) Page 1, Section 1.0, Introduction, Paragraph 2, Line 3. During CRA's monthly monitoring that started in July, 2008, the Large Pond had water in it in August, September and December 2008; April 2009; and in all months from June 2009 to April 2010. This is not exactly a "vernal" (spring) pond. Also, the Small Pond had water in it in August, 2008, April and June 2009, and in January, February and March 2010. Again, while intermittent, the Small Pond is not "vernal".

CRA's RI (page 104) states that the Large and Small Ponds are fed by groundwater and rise and fall with groundwater levels. This is consistent with flow maps, which indicate there is a difference of less than 0.5 feet between the water elevation in the Large Pond and the water levels in the 2 nearest wells located 200 and 300 feet from the Large Pond; and a little more than 0.5 feet between water level in the Small Pond and the water level in the nearest well located about 100 feet from the Small Pond. Since the Large and Small Ponds are in direct communication with the water table, this may have implications for the remedial design (e.g., underground drains).

Please change these lines as follows: "…15-acre Quarry Pond, ~~and two small ponds~~ a small intermittent pond, and a larger, 1-acre pond that is mostly wet but occasionally dry."

6. Comment was not addressed as requested, revision is acceptable. However, page 4, paragraph 2, line 10, needs to be revised to "…which were *to be* addressed in the final RI report (now renamed the OU-2 Planning Support Document)

Section 1.0, Introduction, Page 3, Paragraph 3, Lines 15 and 16, continuing onto Page 4: Some of this information is not correct, please delete the sentence "The results of the Pahse 1 Groundwater Investigation, completed in accordance with the Final Groundwater Letter Work Plan…" from the OU1 RI/FS and replace with the following text:

> "The Respondents submitted the Phase I Groundwater Report, which included a Phase 2 Groundwater Work Plan, in March, 2009. Following discussions with EPA, the Respondents revised and resubmitted the Phase 2 Groundwater Work Plan on April 13, 2009. EPA approved the Phase 2 Grou ndwater Work Plan on May 11, 2009 subject to the modifications and comments included in Attachment 1 of EPA's May 11, 2009 letter. EPA's May 11, 2009 letter also included comments on the March 2009 Phase 1 Groundwater Report, that were to be addressed in the final RI/FS Report (now renamed the OU2 Planning Support Document)."

12. The sentence was revised to "The respondents have provided formal responses to USEPA's comments under separate cover." The responses were received on and dated June 17, 2011.

Section 1.0, Introduction, Page 5, Paragraph 4, Lines 6 and 7. This sentence states the Respondents will provide formal responses to USEPA's comments under separate cover. EPA has not seen this document. Responses detailing how each of EPA's comments are addressed in the revised OU1 RI/FS (as required by the 2006 SOW) would be helpful, but do not substitute for not having revised the report as requested.

13. Comment was addressed as requested, revision is acceptable except that the Site Boundary needs to be shown in addition to the Presumptive Remedy Area boundary where the two boundaries overlap.

Figure 1.2. Please revise Figure 1.2 to show the Site boundary and OU1 and OU2 on the more detailed topographic map included in the Dispute Resolution Agreement.

28. Comment was addressed as requested, revision is acceptable except for the possible errors on Figure 1.4 and Table 1.1 as discussed below. The statement that east of the site groundwater flow would be unaffected was removed, and replaced with a detailed discussion of the groundwater elevation monitoring during the March 2011 spring flooding event. The revised conclusion is that during the March 2011flooding groundwater elevations east of Dryden Road were affected (i.e. increased in elevation due to flooding of the river), however, groundwater flow was generally to the south away from the portion of the Great Miami river north of the site. The newly added figure C.53 supports this interpretation. In addition, CRA appears to have corrected the improper use of the contouring software in the other groundwater flow maps.

Figure 1.4 and Table 1.1 were added to show the response in groundwater elevation to the dropping of river discharge following the March 2011 flooding event. The groundwater elevations for monitoring well MW-226 (located adjacent to the Dryden Road Bridge) appear to be anomalous or erroneous. Figure 1.4 and Table 1.1 show MW-226 groundwater elevation to be 725.20 ft. MSL on March 7, 2011 during peak flooding. However, Figure C.53 indicates MW-226 was inaccessible on this date; also the groundwater elevation of 725.20 ft. MSL would be several feet higher than the elevation of the Great Miami River shown on Figure C.53, which makes MW-226 groundwater elevation suspicious (groundwater should be flowing from the river to the aquifer, and the river elevation should be higher than the groundwater elevation).

Page 11, Groundwater Flow Direction and Horizontal Gradients, Paragraph 3:
The last sentence states that east of the Site groundwater flow direction in the Upper Aquifer Zone would be unaffected by the GMR and flow would be predominantly to the south-southwest. This statement is not supported by the groundwater elevation contour maps presented in Appendix B. For the months of high river levels (February, April, and May 2009 and March 2010) there are no shallow wells east of the site to demonstrate this. Contours showing flow to the southwest or southeast along Dryden Road are not based on any site shallow wells in the northern half of the site, rather the contouring software appears to be improperly using the Dryden Road Bridge gauge as a point source elevation (it represents the surface of the river rather than a point). Also, MW-208, which is located next to Dryden Road along the eastern Site boundary, showed groundwater elevation response to high river levels: 710.46 ft MSL in April 2009, 711.29 ft MSL in May 2009, both high river months; by July 2009 the groundwater elevation in MW-208 had dropped to 709.49 ft MSL. These facts show that groundwater east of the Site could be affected by high river levels.

29. Comment was addressed as requested; revision is acceptable except that Figure 1.5 does not clearly show the Presumptive Remedy Area boundary, which should also be shown in addition to the Site Boundary where the two overlap.

Page 12, Section 1.2.1.3, Hydrology. This section must include at least some discussion regarding the ponds on the site and surface drainage, since these factors will be taken into account in the streamlined FS. Frequency of flooding should also be discussed, as flooding will affect selected remedy.

30. Comment was addressed as requested. However, the presumptive remedy area boundary covers the site boundary – please revise to show the entire portions of both boundaries.

Page 12, Section 1.2.1.3, Hydrology. Please reference and include a copy of RI Figure 3.13, Floodway and Floodplain Map in the OU1 RI/FS.

33. Comment was not addressed as requested, revision is not acceptable. Instead of the requested text change "…summary of the chemical data at sampled locations, and a streamlined assessment of associated risks," CRA provided three tables of contaminants of concern for soil, groundwater and soil vapor. However, CRA did not provide any information regarding how the COCs were derived (e.g., risk screening or all detected analytes). The basis for the COCs must be provided. Also, the statement regarding COCs must be revised to "…soil, *groundwater*, and *soil vapor* are presented in Tables 1.2, 1.3, and 1.4, respectively" to be consistent with actual tables.

July 2010 Comment 15. Not Addressed on Page 14, Section 1.2.2.1, Nature and Extent of Impact and Waste Material. CRA did not address Comment 15 in the revised text. See original comment below and revise as follows:

> This section presents a ~~detailed summary~~ visual description of the ~~nature of the~~ waste material that was ~~brought onto the various portions of the Site as backfill~~ encountered at investigated locations at the Site, ~~and a discussion of associated contaminants~~ a summary of the chemical data at sampled locations, and a streamlined assessment of associated risks. This discussion is based on a review of historic documents, a review of aerial photographs (as detailed above) and ~~several intrusive~~ 2008-2010 investigations, including borehole advancement, test pit and test trench excavation, soil vapor probe installation, and soil, groundwater and soil vapor sample collection."

(ORIGINAL COMMENT) Page 8, Section 1.2.2.1, Nature of Backfilled Material, Paragraph 1. See Comment Nos. 1, 3, 4 and 9. Characterizing the nature of the waste material based solely on CRA's visual observations in a limited number of

test pits, trenches and soil borings, without any acknowledgement of the limited analytical data available at these locations, is not a key factor in implementing the presumptive remedy; and this entire section must be deleted or revised.

The landfill operated without a license for more than 20 years, and then was a licensed MSW landfill. The limited visual, and even more limited analytical data CRA collected, characterizes only a fraction of the heterogeneous waste materials in the 80-acre landfill. Also, consistent with EPA's presumptive remedy guidance, the horizontal and vertical extent of the hazardous substances CRA did detect in the landfill (frequently above 1 x 10^{-4} and HI=1 risk levels, and even above RCRA TCLP levels) has not been characterized.
CRA's 2008-2010 investigations and previous data indicate the Site clearly warrants remedial action consistent with the scope of the streamlined OU1 FS outlined in EPA's January 9, 2008 letter. Because this is a landfill, with unacceptable levels of groundwater and landfill gas contamination, EPA's minimum closure requirements for the Site would be RCRA Subtitle D (solid waste). Also, since OEPA's solid waste requirements are more stringent than RCRA Subtitle D requirements, any final remedy for the Site would also have to comply with state requirements. The Respondents had over 2 years to collect additional data to defensibly demonstrate if there were any areas of the landfill where there was not a basis for solid waste capping (consistent with SOW requirements); but did not.

In any case, CRA's unapproved OU1 Risk Assessment still indicates remedial action is warranted at the Site based on on-Site industrial/commercial worker exposure to surface soil (RME HI>1); construction/utility worker exposure to surface and subsurface soil (RME HI>1); and off-Site resident exposure to on-Site shallow groundwater (RME cancer risk>1 x 10-4 and RME HI>1).

Revise this section as follows:

1.2.2.1 Nature of ~~Backfilled~~ Landfilled Material and Streamlined Risk Assessment

"~~The nature of the material backfilled on the Site is a key factor in identifying data gaps and implementing a presumptive remedy~~. This section ~~presents a summary~~ provides a visual description of the ~~nature of the material that was brought onto the various portions of the Site as backfill~~ type(s) of landfill materials encountered at investigated locations at the Site, a summary of the chemical data at sampled locations, and a streamlined assessment of associated risks.

59. Comment was not addressed as requested. Revisions are unacceptable. In CRA's response to comments letter (June 17, 2011), it is stated that a

conflicting sentence was deleted. However, it appears that all of paragraph 2 was deleted, which includes the requested revision. This avoids addressing the issue presented in this comment. At a minimum, CRA should present their rationale for simply deleting the paragraph.

July 2010 Comment 34. Not Addressed on Page 30, Dryden Road Businesses, Paragraph 2. Please revise as previously requested. Dryden Road Businesses (Parcels 5173, 5174, 5175 and 5176), Page 17, Paragraph 1: If the materials disposed on the Central Parcels are expected to be present on at least the western portions of Lots 5173, 5174, 5175 and 5176, then it would also follow that the materials disposed on the already developed, eastern portions of these Lots may be similar to the materials disposed in the Northern Parcels. Although CRA's visual and analytical data is limited, available data for these parcels seems to confirm this (e.g., TCE 630 ug/m3 in GP-14 directly behind building on Lot 5173 shown in 1954 air photo, and 1,200 ug/m3 TCE in GP-12 on north side of building on Lot 5175 shown in 1954 air photo, compared to maximum of 190 ug/L TCE in Central Parcel gas probes); and would be consistent with the tax map (from 1956-1959 according to page 12 of RI), which shows that the eastern portion of these properties had already been filled and developed, along with the Northern Parcels, before filling began in the Central Parcels. Please revise the last sentence of this paragraph as follows: "Therefore, the materials mentioned above as being disposed on the Central Parcels would also be expected to be present on at least the western portions of Parcels 5173, 5174, 5175, and 5176; and the materials disposed on the eastern portions of these parcels may be similar to the materials disposed in the Northern Parcels.

60. Comment was not addressed as requested, revision is unacceptable. Although CRA mentioned the fact that the drainage tile was damaged and repaired during the UST removal, neither the potential for a preferential pathway for landfill gas nor the need to delineate the tile was discussed.

Section 1.2.2.1, Nature and Extent of Impact and Waste Material, Page 30, Dryden Road Parcels, Paragraph 3. EPA provided CRA with a copy of the UST removal report. Another significant item in the report is that there appears to be drainage tile at the Site, which CRA has not delineated, and which could provide a preferential pathway for landfill gas. Please revise this section to include this, and all other relevant information from the report.

66. Comment was not addressed as requested, revision unacceptable. CRA did add a statement that no TAL/TCL samples were collected from soil or landfill material on Parcel 3275, and did reference that Ohio EPA collected two sediment samples (and that Payne Firm collected six sediment samples); however, CRA did not discuss or present the sediment sampling results as requested.

July 2010 Comment 39 Not Fully Addressed in Quarry Pond Parcels, Pages 32 to 35. As previously requested, please clarify that no TAL/TCL samples were collected from landfill material or soil on Lot 3274, and include the results for OEPA's sediment samples. (ORIGINAL COMMENT) Quarry Pond, Page 18, Paragraph 5: See Comment 37 and 38 and revise as follows: "Thus, at CRA's test trench and soil boring locations in the northeast portion of Parcel 5178 and in the embankment surrounding the Quarry Pond ~~Parcels contain~~, CRA observed mainly fill material with some RW and CD~~; however, the waste is almost entirely present in the northeastern portion of Parcel 5178 and in the embankment surrounding the Quarry Pond~~. Consistent with the presumptive remedy, CRA only collected limited samples of landfill material for TAL/TCL analysis from the 20 acre Quarry Pond area (4 samples total from 3 locations on Lot 5178: TT-14, TT-16 and TT-17). No TAL/TCL samples were collected from landfill material or soil on Lot 3274; and there is no visual or chemical data for any of the material on Lot 3275. Sediment data for the Quarry Pond is limited to the two sediments samples OEPA collected 15-18 feet below the surface of the Quarry Pond 150 and 350 feet west of the northeast corner of the Quarry Pond in 1996 (sample S15OEPA and S16OEPA).

68. Comment was not addressed as requested, revision unacceptable. Some inaccuracies were removed from the existing paragraph, and a paragraph regarding the conductive anomaly on Barnett Lot 4610 was added. However, this discussion needs additional revision.

"The EM61 results for Parcels 3753 and 4423 (Jim City Salvage property) indicate that the majority of the response can likely be attributed to metallic objects at or near the ground surface. The lack of any significant magnetic anomalies in this are lends support to this conclusion." It is not clear how the lack of magnetic anomalies supports the conclusion that the metal detection anomalies are related to scrap metal and partially buried car parts. Explain how the total field magnetic would not respond to shallow or surficial metallic material. If the magnetic survey avoided areas of surficial shallow metal, then the conclusion is not justified.

"It is not possible to say whether TT-18 and GP07-09 were located within or outside of conductive anomalies, as Parcel 3753 was not included in the EM31 Electromagnetic Survey because the Parcel could not be surveyed, due to the presence of material that could not be moved." This discussion needs an introduction regarding which parcels or portions of parcels were not surveyed; revising Figure 1.8 to shade areas that were not surveyed would be preferable.

Page 47, paragraph 1, lines 15 and 16: The statement that identified materials and associated depths are consistent with EM31 and EM61 readings for the anomalies is not justified. TT-17 encountered rebar and scrap metal, even

though it is located outside a metal detection anomaly. VAS-22 encountered only foundry sand, even though it is located within a metal detection anomaly.

July 2010 Comment 42 Not Addressed in Jim City and Barnett Parcels on Pages 35 to 37. Please revise as previously requested. Additional test pits and trenches will be needed in these areas as part of OU2. Please remove all statements indicating that the source of the anomalies has been identified.

(ORIGINAL COMMENT) Jim City and Barnett Parcels (Parcels 3753, 4423, 4610 and 3252), Page 19, Paragraph 3, Lines 10 to 14: The statement that CRA encountered rebar, scrap metal, and foundry sands in the upper five feet of fill during the excavation of TT-17 and during the drilling of VAS-22, which were installed in and around these anomalies is not entirely accurate. First, although brown sand fill (from the log, it is not clear if this is foundry sand), rebar and scrap metal were detected in the first five feet of fill in TT-17, TT-17 was located approximately 50 feet from the northern conducive anomaly identified on Jim City property, and approximately 75 feet from the closest magnetic anomoly - in an area where no anomalies were identified. Second, although VAS-22 was located within or adjacent to one of the conducive anomalies and one of the magnetic anomalies, the only landfill material identified in this boring was foundry sand. Based on the figures and boring logs, the other, limited investigative locations on the Jim City properties (i.e., TT-18, GP07-09 and GP08-09) were also outside the Jim City magnetic anomalies, and TT-18 and GP07-09 were outside the conducive anomalies. GP08-09 may have been located within or adjacent to one of the conducive anomalies at the Jim City properties; however, this boring only contained brown sand fill, not rebar or scrap metal.

This section of the FS also does not discuss the conducive fill anomaly on Barnett Lot 4610. GP09-09 was at the northwestern end of this anomaly and contained grey, brown and black silt, sand and gravel fill. CRA's only other investigative location on Lot 4610, GP09-09, also contained brown and dark brown silt, sand and gravel fill, and is located approximately 25 feet from the southeastern end of this anomaly.

Please revise this section of the FS to provide a more accurate, complete discussion.

70. See individual responses below. July 2010 Comment 46 Not Addressed on Pages 38 to 46. Please revise. Section 1.2.3, Nature and Extent of Contamination, Pages 20-23. This section of the FS must be revised consistent with all previous FS comments or deleted. Some specific comments are listed below.

71. Comment was not addressed as requested, revision unacceptable. “at investigated locations” was not added to the sentence.

July 2010 Comment 47 Not Fully Addressed on Page 38. Revise Lines 1 and 2 as follows: “to identify the impacts resulting from the previously described historic Site activities at investigated locations.” (ORIGINAL COMMENT) Section 1.2.3, Nature and Extent of Contamination, Page 20, Paragraph 1, Lines 1 and 2: See previous comments. The full extent of contamination and impacts at the Site has not been identified. Please change "to identify the extent of impact" to "to identify impacts".

73. Comment was not addressed as requested, revision unacceptable. The requested deletion actually reads “including the nature of impact at the site” rather than “nature and extent.” However, the statement was not deleted. Although this is an OU-1 streamlined RI/FS, such a sweeping statement cannot be applied to this document, especially because off-site groundwater impacts (OU-2) are not discussed in this document, and groundwater is part of the nature of impact at (and from) the site.

July 2010 Comment 49 Not Addressed on Page 38, Section 1.2.3, Nature and Extent of Contamination, Paragraph 2, Line 6. See previous comments. CRA does not know the nature of the impact at the Site because CRA’s characterization across OU1 is horizontally, vertically and analytically limited. Please Address. Section 1.2.3, Nature and Extent of Contamination, Page 20, Paragraph 3: See previous comments. The nature and extent of impact at the Site has not been fully characterized. Please delete "including the nature and extent of impact at the Site" from this paragraph.

75. Comment was not addressed as requested, revisions unacceptable. CRA did not add any discussion regarding VOCs in surface soils, including the fact that surface soil sampling was limited to Parcel 5177.

Section 1.2.3, Nature and Extent of Contamination, Page 39, Bullet 5, Lines 1 to 3: This bullet states that CRA did not identify any VOC impacts in OU1 surface soil based on the results of prevous investigations. First, VOC impacts in surface soil are generally limited because these chemicals are volatile and, at shallower, depths, they are more likely to volatilze into the atmosphere. Second, previous surface soil sampling was limited to Lot 5177; however, even so, VOCs were detected in S8-EPA (TCE, PCE and toluene), in slightly deeper S01-OEPA (PCE), and in S1-EPA, S5-EPA, S6-EPA, S7-EPA, S03-OEPA, S08-OEPA, S10-OEPA and S11-OEPA (toluene). Please revise this bullet to provide this more complete information.

77. Comment was addressed as requested, except that only parcels 5054, 5172, and 5177 are referenced as having samples containing chlorinated VOCs, as shown on Figure 1.12, which is not accurate.

Section 1.2.3, Nature and Extent of Contamination, Page 39, Bullet 5, Lines 5 to 8: Chlorinated solvents were detected in landfill material in TP-2, TP-3, TP-4, TP-5, TP-6, TT-5, TT-7, TT-8, TT-9, TT-10, TT-11, TT-12, TT-19, TT-20, TT-21, TT-22 and TT-23. The composite sample from the 5 drums found by Valley Asphalt also contained 64,000 ug/Kg of TCE, as well as 1,1,1-TCA and vinyl chloride. Chlorinated solvents were also found in landfill gas samples collected in other areas of the Site where soil data is not available. Please revise as follows: "Chlorinated VOCs, including PCE, TCE, cis-1,2-DCE and ~~one of its~~ the degradation product VC, were also detected in ~~soil~~ landfill material samples collected from Parcel 5171, 5054, 5172, 5174 and 5176 (landfill material in Parcel 5173 and Parcel 5176 was not sampled). The source of these contaminants ~~is not clear but~~ may be related to the former Ottoson Solvent operations, as well as drums and other waste material in the landfill."

78. Comment was not addressed as requested, revision unacceptable. The second sentence in this bullet should be revised to: "Oil and hydraulic fluids leaking from vehicles and from *documented* waste disposal would potentially contribute PAH contamination."

Section 1.2.3, Nature and Extent of Contamination, Page 39, Bullet 6: SVOCs are also present in oil and brake fluid. Alcine's notes on the tax map indicate these materials were disposed at the Site, so their presence at the landfill is also from the waste disposal of these materials, not just from oil and hydraulic fluids leaking from vehicles in the former auto areas. Please revise this bullet to include this information.

82. Comment was not addressed as requested, revision unacceptable. Although CRA's response to comment letter indicates they revised as requested, the requested statement was not removed.

Leachate, Page 41, Bullet 1, Line 15: The statement that perched areas are likely transient and only present seasonally or after significant precipitation events is not justified by the available data. This statement should be removed.

84. Comment was addressed as requested. During the revision in response to comment no. 84, the statement referring to high permeability of waste material preventing the generation of leachate was removed. However, discussion of perched water was limited to the previous bullet.

July 2010 Comment 56 Not Fully Addressed in Leachate, Page 41, Bullet 2, Line 14: The statement that the high permeability of the waste material would appear to prevent the generation of perched areas of leachate cannot be justified by the level of investigation performed on the wastes. In addition, the high permeability referred to would contribute to the migration of leachate to groundwater. Please revise.

(ORIGINAL COMMENT) Leachate, Page 22, Bullet 2: This bullet states that the high permeability of the native soil and waste material would appear to prevent the generation of perched areas of leachate. However, CRA observed perched water at GP19-09 (1' perched water at 19 ft-bgs) and GP-20-09 [1' gray sand, wet (perched water) at 7 ft-bgs]; and wet zones above the water table in GP01-09 (0.5' wet at 8 ft-bgs) and GP18-09 (1.6' wet at 21.1 ft-bgs). CRA did not collect any water or soil samples from these intervals, however, soil gas samples from these locations had some of the highest levels of soil gas concenrations at the Site, and all locations contained VOCs in soil gas above 1 x 10-4 or HI>1 industrial risk concentrations. Methane was also detected at two of these locations: GP01-09 and GP18-09 consistently above the UEL for methane (20.6 to 28.4 percent methane). CRA should also review other test trench, test pit, VAS and monitoring well borings to identify any other locations where perched water or wet zones above the water table were identifed. Please revise this section of the FS to discuss this thoroughly.

85. Addressed as directed but with insufficient information "(e.g., fill to the water table with clean material prior to capping)". Elevation/thickness of fill is not discussed.

July 2010 Comment 55 Not Fully Addressed on Page 42, Bullet 1. CRA indicates the Large and Small Ponds will be addressed through capping, but it does not seem like this will work without underground drains unless this area is filled in prior to capping. Please state whether these areas will be filled, the type of fill material that will be used for filling, and to what estimated elevation/thickness. While some amount of regrading and consolidation of landfill material is to expected at this Site (although CRA did not discuss this), fill material that is anticipated to be in contact with the rising and falling groundwater table should at least be clean fill material.

(ORIGINAL COMMENT) Page 21, Leachate, Bullet 1: The Large and Small Ponds are fed by groundwater and rise and fall with groundwater levels (RI page 104). Since the ponds appear to be low spots in the landfill that were not filled in all the way, the water in the Large and Small Ponds is leachate, although it was never sampled by CRA. Please revise this bullet to discuss the potential for leachate generation in the Large and Small Ponds, since it would seem that this

will need to be taken into account during RD (e.g., underground drains or other engineering technologies may be needed).

87. Comment was not addressed as requested. CRA's response to comments letter indicates this comment was revised in accordance with a conference call, however, some of the requested revisions were not made - specifically that CRA did not install groundwater monitoring wells at locations or in intervals where high levels of lead and/or arsenic were detected in VAS samples (e.g., 1,940 ug/L in an unfiltered shallow groundwater sample from VAS-5 in the Northern Parcels, and 3,200 ug/L in an unfiltered shallow groundwater sample from VAS-11 in the Central Parcels).

July 2010 Comment 58 Not Addressed on Pages 41 (Bullet 3) and 42. Please revise this paragraph as follows:

> "As infiltrating precipitation migrates vertically downward through waste or contaminated soil, or if waste or contaminated material is in contact with groundwater, ~~it~~ contaminants may leach ~~contaminants~~ from the waste or soil and be transported ~~the contaminants~~ to the underlying groundwater. CRA did identify lead at concentrations greater than the TCLP criteria in the TCLP leachate analysis completed on two composite samples collected from black sand on Parcels 5054 and 5177 and in the drum removed from TT-21. Lead was also detected at concentrations greater than the TCLP criteria in a composite sample collected from the five drums removed from Valley Asphalt, and was above EPA's RSL for soil groundwater protection criteria at the MCL based on a DAF of 10 (140 mg/Kg) in at least 20 out of 41 test pit, trench and soil sampling locations. ~~However~~, Concentrations of lead in groundwater samples collected by CRA in the groundwater monitoring wells are below USEPA MCL RSLs, with the exception of the concentration of total lead in one of two samples from MW-215A and a sample from P-211. However, CRA did not install groundwater monitoring wells at locations or in intervals where high levels of lead and/or arsenic were detected in VAS samples (e.g., 1,940 ug/L in an unfiltered shallow groundwater sample from VAS-5 in the Northern Parcels, and 3,200 ug/L in an unfiltered shallow groundwater sample from VAS-11 in the Central Parcels). The presence of suspended particulate matter in VAS samples may have contributed to elevated metals concentrations in unfiltered VAS samples, thus a comparison of the total metals VAS results to RSLs ~~was~~ may not be appropriate and was not completed. USEPA approved the collection and analysis of the filtered groundwater samples in a conference call on December 3, 2008. Beginning on December 6, 2008, and, consistent with CRA's streamlined, presumptive remedy investigation, CRA collected and filtered the groundwater samples submitted for dissolved arsenic and dissolved lead

analyses from a minimum number of approximately every fourth sampling interval. After the groundwater samples were analyzed, it became apparent, however, that filtered data is not available for all intervals where high levels of lead or arsenic were detected in unfiltered VAS samples, including the VAS-5 and VAS-11 sampling intervals discussed above. Concentrations of unfiltered (i.e., total) arsenic and lead at all VAS locations were greater than RSL criteria. Concentrations of dissolved (i.e., filtered) metals ~~sampled~~ at all VAS locations (where sampled) were less than the concentrations of total (i.e., unfiltered) metals at ~~all~~ comparable locations, typically by more than an order of magnhitude, and were less than MCL RSLs, with the exception of VAS-11, VAS-24, VAS-26 and VAS-27. Therefore, the concentrations of metals in these unfiltered VAS samples were biased high due to metals present in the particulate. ~~The groundwater data indicate that there does not appear to be significant leaching of lead into the undergroundwater.~~ Benzene was detected above TCLP leaching criteria in the TT-21 drum removed by CRA, and benzene, TCE, PCE, vinyl chloride, and/or cis-1,2-DCE were detected in landfill materials at concentrations above EPA RSL soil groundwater protection criteria equal to the MCL and/or a cancer risk of 10-4 based on a DAF=10 at the following locations: TP-3, TP-5, TT-8, TT-9, TT-20, TT-21, TT-22 and TT-23. These VOCs were also detected above MCLs and/or EPA RSLs equal to a cancer risk of 10-4 and/or a HI=1 in groundwater samples collected from within the landfill area (VAS and/or groundwater monitoring well samples). Groundwater will be further assessed during the OU2 RI/FS.

(ORIGINAL COMMENT) Leachate, Page 22, Bullet 2: The statement that, with the exception of lead in MW-215A and P-211, concentrations of lead in groundwater samples collected by CRA in the Central and Northern Parcel monitoring wells are below MCLs, and therefore, there does not appear to be significant leaching of lead into the underlying aquifer, is misleading. Lead was detected at very high concentrations in unfiltered shallow and deep groundwater samples across the Site. For example, lead was detected at 1,940 ug/L in an unfiltered shallow groundwater sample from VAS-5 in the Northern Parcels, and at a concentration of 3,200 ug/L in an unfiltered shallow groundwater sample from VAS-11 in the Central Parcels. A comparison of available filtered and unfiltered groundwater data collected from some sampling locations and intervals (filtered data is not available for all sampling locations and intervals, and not for the VAS-5 and VAS-11 sampling intervals discussed above), indicates that most of the lead in the VAS samples may have been sorbed onto particulate matter in the groundwater, instead of dissolved in the groundwater. However, consistent with the presumptive remedy, CRA did not collect filtered groundwater data from all VAS samples to confirm this, nor did CRA install permanent groundwater monitoring wells at locations where high levels of lead were detected in unfiltered

samples and resampled. Also, consistent with the presumptive remedy, CRA installed several monitoring wells without VAS, and did not sample these wells for lead (e.g., MW-225, MW-226, MW-227, MW-228 and MW-229). As a result, the full extent of lead contamination in on-Site groundwater is uncertain. Please revise this bullet to provide a more complete, accurate summary as discussed above.

91. Comment was not addressed as requested, results acceptable. The revised sentence reads: "Although elevated concentrations are present in a number of soil gas probes across the Site, (most notably in the northern parcels) further investigation in some area is warranted to confirm:" It should be noted, however, that CRA's response to this comment in its response to comments letter includes a table that omitted the high TCE soil gas concentrations detected in GP09-09 (part of CRA's rationale that soil vapor concentrations in GP09-09 are not significantly elevated). This table also excluded the high TCE concentrations in GP20-09.

July 2010 Comment 62 Not Fully Addressed on Page 43, Landfill Gas and Soil Vapor, Bullet 3. Please revise as requested. See results for GP-13 and GP-9 (based on residential). Page 23, Landfill Gas and Soil Vapor, Sentence 2: The sentence "Although significantly elevated concentrations are not present across the Site" is not accurate. See previous comments and revise as follows: "Although significantly elevated concentrations are ~~not~~ present ~~across~~ at the Site (most notably at Valley Asphalt, along Dryden Road and at the southeastern Site boundary on Lot 4610), further investigation is warranted to confirm:"

96. Comment was not addressed as requested. CRA revised the bullet to provide more specific information, but did not add the requested revision. At a minimum, the current text should be revised to read: "…indicating that CRA advanced BH04-09 and BH08-09 near the boundaries of the LNAPL plume at those locations.

July 2010 Comment 61 Not Addressed in Groundwater, Page 45, Bullet 2. Please revise as requested. Page 22, Groundwater, Bullet 3, Sentence 2: Since LNAPL was still present in BH04-09; BH07-09 and BH08-09, the full extent of LNAPL has not been delineated, so it is uncertain whether MW-219 is in the approximate center of the LNAPL area. Please revise as follows: "CRA has not observed free-phase LNAPL in the monitoring well (MW-219) installed in the approximate center of the LNAPL area (however, the actual extent of LNAPL has not been determined, e.g., beyond BH04-09, BH08-09 and BH07-09)."

97. Comment was not addressed as requested, results unacceptable. A section titled “Potential Areas of principal Threat Waste” was added; the section gives a general description of the regulatory definition of principal threat wastes, and lists the areas included in this comment. These areas are further assessed in Appendix D to determine if the areas meet the definition of a hot spot, and whether further investigation is required.

The assessment in Appendix D is based on answering four general questions regarding potential hot spots, as provided in EPA’s presumptive remedy for municipal landfills guidance. CRA states that all four questions “must” be answered in the affirmative to support a decision to characterize and treat hot spots. The assessment was stated to determine if each area met the “definition” of a hot spot. However, EPA’s guidance states that “the decision to characterize and/or treat hot spots is a site-specific judgment that should be based on the consideration of a standard set of factors”, and lists the four questions presented in Appendix D. The guidance then states that an affirmative answer to all four questions indicates it is likely a significant risk reduction at the site would occur as a result of treating hot spots. The language referring to specific definitions and that all four questions “must” be answered in the affirmative should be removed. The intention of the evaluation for hot spots is not to “define” areas as hot spots requiring treatment, rather to identify areas where risk reduction could be achieved by treating hot spots.

A summary of the results of the evaluation should be added to the “Potential Areas of Principal Threat Waste” section on page 62, along with the identified data gaps associated with these areas and recommended additional investigations. Some of the proposed additional investigations are slated to be performed during the OU-2 RI (e.g., TT-9/GP15-09/VAS-08 and VAS-09/GP13-09); however, some of the proposed investigations were not included in this specification (e.g., TT-21/MW-29, GP19-09/VAS-04, and GP20-09/TT-23). If those investigations are not planned as part of OU-2 RI, the planned time frame for those investigations should be added. Also refer to Figure 1.31.

Page 46, Section 1.2.3.1, OU1 Data Gaps. Please include areas where principal threat waste has been identified or may be present as an OU1 data gap. This includes, but is not limited to, the following areas: TT-21/MW-229; GP18-09/TT-22; GP19-09; GP20-09/TT23; TT-9/GP15-09/VAS-8; VAS-9/GP-13; TP-3; MW-210; the LNAPL; and all OU1 UST areas. These areas will need to be fully evaluated to determine whether excavation and/or treatment are warranted consistent with EPA policy and guidance.

98. Comment was not addressed as requested, results unacceptable. CRA added a sentence describing which geophysical anomalies they plan to investigate. Although these anomalies are shown on Figure 1.31, the planned

investigations are not overlain on a figure showing the geophysical results. Also, as mentioned in an earlier comment, the geophysical results map should identify areas where geophysical surveys were not performed.

There are several other magnetic anomalies in the Central Parcels that CRA has not recommended investigating, for example, the elongated anomalies between TP-4 and GP02-09. These anomalies are mentioned on page 32, where it is stated that "the two large distinct anomalies identified as part of the field magnetic survey area consistent with foundry sand and slag, which were identified at depth in this area of the Site, and are consistent in location and orientation with former access roads shown in the 1954 and 1960 aerial photographs of the Site." CRA states that TP-4, TT-3 and VAS-11 were installed in and around the two large anomalies. However, none of these sampling locations is located in the magnetic anomalies. These anomalies represent the largest anomalies identified by the total field magnetic survey on the Site, and as stated in the comment, CRA's interpretation of these anomalies must be verified though test pit investigations.

Page 47, Geophysical Anomalies. Please indicate which OU1 geophysical anomalies CRA currently plans to investigate and characterize further during remedial design to determine whether excavation or treatment of the material is warranted consistent with EPA policy and guidance. The specific locations should be shown as an overlay on the geophysical survey results. Areas where CRA believes anomalies are due to rebar, concrete, or scrap metal, or something other than drums, must be verified in the field through actual test pit investigations.

99. Comment was not addressed as requested, results unacceptable. The main revision made to this section is that "the proposed remedies are designed to protect receptors from direct contact exposure risks, understanding the background metals concentrations may provide additional data to help determine the extent of the site requiring capping (i.e., whether any soils outside the areas of solid waste placement need to be included within the cap)." Also added: "The limits of cap placement, especially north of the recreational trail on Lots 3056 and 3057, will be determined during RD."

Determining the extent of cap beyond the areas agreed to in the dispute resolution settlement is to be based on whether or not solid waste is present in these areas, which appear to be a continuation of the landfill embankment. For example, solid waste was identified in MW-229, and the area northwest of the recreational trail is also significantly elevated above the surrounding low-lying floodplain area and seems to have a high potential to be constructed of solid waste material, similar to the rest of the embankments. The purpose of the RD investigation was to determine whether or not these materials should be capped

with the rest of the landfill prior to construction, which would seem to be more cost effective. If the materials are not capped, determining whether these materials need to be remediated as part of OU2 will require more than a background metals study, as mentioned in the comment. A systematic sampling program for all COCs (not just metals) would be required to support quantitative human health and ecological risk assessments to determine whether there are areas outside the presumptive remedy that also need to be addressed.

July 2010 Comment 70 Not Fully Addressed in Background Metals Concentrations on Page 47. Please revise as requested. How will background metals samples be used in the OU1 presumptive remedy? Page 24, Background Metals Concentrations: The concentrations of lead driving the direct contact risks at the site - as high as 17,700 mg/Kg - are not due to background concentrations. And the containment remedy is supported by other pathways as well (e.g., contaminant migration to groundwater, landfill materials in GMR floodplain). Are there some areas of the landfill where CRA intends to conduct intensive, systematic sampling to support a quantitative risk assessment showing a specific area of the landfill may not require containment? If this is the case, then background metals concentrations may be relevant. Please explain with more specific information (e.g., what properties does CRA plan to reassess, etc.) or delete this as a data gap. Background concentrations for soil in GMR floodplain areas is appropriate, but this will be addressed in OU2.

106. Not addressed and unacceptable. The text in Section 1.2.3, page 51, first bullet states, "Waste material was accepted at the Site for over 50 years from the early 1940s until 1996; however, as records prior to 1969 are incomplete, the exact types and quantities are not known" does not match the statement that was retained which says "…the Site operated as a landfill, accepting ~~non-hazardous~~ fill and waste materials." Please delete 'non-hazardous' (as shown above) which gives the impression that the site only accepted non-hazardous fill and waste materials. This is clearly not the case as presented later in Section 1.2.3.

Page 60, Paragraph 4, Sentence 1: Change "…the Site operated as a landfill, accepting non-hazardous fill and waste materials" to reflect what has actually been seen through Site investigations, including LNAPL, USTs, drums and RCRA hazardous waste.

108. Comment was not addressed as requested, results unacceptable. CRA added some detailed results of TCLP sampling; however, CRA did not remove the statement "There is also evidence of small isolated areas of the Site where TCLP concentrations in soil/waste samples were greater than the applicable TCLP criteria." Given the limited TCLP sampling, that statement is still not defensible, even with more detail regarding the sampling results presented. There is insufficient data to evaluate the extent of hazardous waste in the landfill.

Page 60, Paragraph 4, Line 8: See previous comments. Since CRA only collected 5 samples for TCLP analysis from the 80-acre landfill and did not investigate the nature and extent of the TCLP characteristic hazardous waste that was found any further; and since 2 of the samples that were hazardous were composite samples taken from materials 200-300 feet apart and 350 to 1,350 feet apart, the statement "There is also evidence of small isolated areas of the Site where TCLP concentrations in soil/waste samples were greater than the applicable TCLP criteria" is not defensible and must be revised to indicate where the material was found and to clarify that the extent of the hazardous waste was not determined.

117. Not addressed and unacceptable.

(a) The introductory paragraph of Section 2.3 states "CRA has developed general response actions for each of the six media of interest identified in Section 1.2.4 (i.e., soil, waste, and fill; NAPL; leachate seeps to surface; LFG) consistent with the RAOs." Section 1.2.4. has a different media of interest list - soil, waste, fill, LFG, soil vapor, and groundwater. Sediment and surface water is not included in this list, although these are present in both the large and small ponds. The list should also reflect Section 2.2.2 that breaks out the media as: relatively low-level threat soil, waste, and fill; hot spots containing principal threat waste (i.e., waste that warrants excavation or treatment consistent with USEPA policy and guidance (e.g., free-phase LNAPL, drums containing liquid or hazardous waste; other principal threat waste that meets the conditions for warranting excavation or treatment indicated in USEPA 1993); leachate seeps discharging to surface; LFG; soil vapor. Therefore, looking at all these lists the media of interest are: Low level threat soil, waste, and fill; principal threat soil, waste, and fill including NAPL, drums with liquids or hazardous waste, soil exceeding TCLP concentrations, etc.; leachate; soil vapor; LFG, sediment, surface water, and groundwater. Add a sentence stating that soil, waste, fill, surface water, and sediment outside of OU1, and groundwater, are being addressed as part of OU2 along with LFG and soil vapor that may be present outside of the currently demarcated zones in Figure 2.3. Figure 2.3 correctly states, "boundary may be expanded during RD and OU2 RI/FS"; add this language to the text.

(b) The introductory text states that six general response actions have been identified but eight are described in the subsequent text (No Action, Institutional Controls, Containment Actions, Excavation Actions, Extraction Actions, Treatment Actions, Disposal Actions, and Other Actions) and nine are presented in the list at the end of Section 2.3 (No Action, Institutional Controls, Containment Actions, Excavation Actions, Extraction Actions, Treatment Actions, Disposal Actions, Physical/Chemical/Biological Actions, and Other Actions). Make the Section consistent to include the eight GRAs listed in the text and make Physical/Chemical/Biological Actions subsets of Treatment Actions.

(c) The examples included in the definition of Other Actions includes GRAs that are already listed as a bulleted item (i.e., in-situ mentioned under Treatment Actions and disposal mentioned under Disposal Actions) - remove the duplicate GRAs. Change the text to "Other actions may be undertaken to achieve RAOs; ~~and may include remedial technology types such as in-situ treatment, together with on-Site or off-Site discharge/disposal~~ *these actions may become apparent during RD or the OU2 RI/FS.*"

(d) The last sentence of Section 2.3 states that seven media of interest are addressed when only six are listed. Match the list as described in (a) above.

(e) In the list at the end of Section 2.3, change the category for Other to include all media of interest.

(f) Table 2.2, which is referenced in this Section, only contains six media of interest (waste, fill, soil, NAPL, leachate, LFG). Match the list in (a) above for inclusion in Table 2.2.

Page 63, Section 2.3, General Response Actions. Please revise this section to include the specific general response actions for each media to be addressed, including the large volume of relatively low-level threat material that the solid waste containment remedy applies to; and liquid waste, drums containing liquid or hazardous waste, and other principal threat waste that warrants excavation or removal consistent with EPA 1993, that may be encountered when these areas are investigated during remedial design, that the solid waste containment remedy does not address. See previous Comments, including Comments 104, 108, 110 and 114.

117. Additional comments have been made on Section 2.3, revise the section to address the new comments.

Section 2.4, Identification and Screening of Technology Types and Process Options, Pages 64 to 70. This section will need to be rewritten to address previous comments.

119. Not addressed and unacceptable. The added figure is unacceptable. In Figure 2.1, the arrows that should be showing pressure on the cap are shown exerting equal pressure on the ground surface near the GMR not on the cap. The figure needs to show pressure on the cap and it should also show soil gas movement beneath the cap that is expected during flood events. The figure shows the March 2011 flood event and, unless the March 2011 flood event was a 100-year flood, the figure should show what the 100-year flood would look like when the cap is in place. LFG and soil gas will escape through LFG vents and along Dryden Road when groundwater is rising. The cap will draw in air, from which oxygen may be a problem, when groundwater is falling.

Pages 65 to 66, Landfill Cap: There needs to be a discussion within the document of potential hydrostatic uplift and of venting due to communication with rising and falling groundwater levels. A conceptual cap illustration must be used to show how flood events would impact the cap. It should be shown where the cap lies within the 100-year floodplain and the 100-year floodway, as well as other, more frequent flood elevations, including the flood observed this year which appears to be an annual or bi-annual event. Please revise

120. Not addressed and unacceptable. The included figures do not realistically show what a final cap will look like. No plan figure with anticipated topography is shown and Figure 2.1 shows a section of the cap that is 25 to 30 feet above ground surface near the large and small ponds that are still being discussed as retention ponds after cap construction. It is not known how the statement in Section 2.4.2.1 stating, "Large Pond and Small Pond would be backfilled with clean soil to the water table and graded to use for stormwater management. In accordance with OAC 3745 27-08(D)(3), the Large Pond and Small Pond would be modified to operate as stormwater retention ponds…" (page 88, first paragraph) can be implemented based on the included figure. The use of the ponds for stormwater retention is reiterated throughout Section 3.0 and 4.0. One such example is Section 3.1 which states, "Therefore, channels would ultimately direct excess stormwater to stormwater retention ponds (i.e., the Large Pond and Small Pond), before discharging to the municipal stormwater system. The locations and capacity of these channels will be determined during the remedial design stage." If the planned approach stated in Section 1.2.3 "fill to the water table with clean material prior to capping" is implemented then it is unknown why any discussion of the ponds is even included since they will no longer exist. The large and small pond are also discussed as part of the stormwater runoff system in Section 4.2.2, page 125, last paragraph and Section 4.2.3, page 135, fifth paragraph. Remove all references to the large and small pond being used for stormwater control under the capping alternatives.

Include a plan view of the cap with topography and base the section drawing off the anticipated cap design. Show conceptual stormwater controls on the plan drawing but do not include features that will no longer exist following cap construction.

Page 65-66, Landfill Cap: Conceptual drawings of the capping alternatives must be included. The drawings must also show how the various sloping options and embankments for the capping alternatives will look topographically and in cross-sections.

124. Not addressed and unacceptable.

(a) For monitoring, the text states, “For conceptual purposes, the minimum locations where explosive gas alarms and monitors/punch bar stations along with the locations of passive vents would be installed are shown on Figure 2.3.” There is no labeling on the drawing that denotes whether punch bar locations or permanent monitoring stations will be used and at which locations. OAC 3745-27-12 does state that a punch bar may only be used if the explosive gas pathway does not represent a potential hazard to an occupied structure. Also, according to OAC 3745-27-12, "occupied structure" means an enclosed structure where one or more human beings may be present, but does not include structures that are open to natural free air circulation such that the explosive gas hazard is minimized. None of the trailers have been marked for monitoring; this leads to the assumption that they all have natural free air movement beneath them. The trailers need to be individually inspected and documented for conditions that can trap LFG beneath the structure. If there is no natural free air movement beneath a trailer then monitoring must occur. Any trailer that currently has natural free air movement must have the occupants informed that they are not in the monitoring program. Institutional controls must be developed that deal with the possibility of new trailers or remodeled trailers to prevent the loss of natural free air movement.

(b) For venting, the text states, “The passive vents will, therefore, be installed in discrete locations where methane has previously been measured at concentrations greater than the 100 percent of the LEL (or 5 percent methane by volume). Specifically, this will include GP01-09, GP02-09, GP04-09, GP18-09, and GP21-09.” Figure 2.3 does not show a vent location for GP18-09. Additionally, no monitoring locations are shown along the site boundary with the GMR. OAC 3745-27-12 requires facilities that accepted waste after 1994 to include “Permanent monitors or punch bar stations in such locations and in such numbers that explosive gas migration through the unconsolidated stratigraphic unit or fractured bedrock pathway towards the facility boundary will be detected.”

Section 2.4.2.2, Monitoring and Passive Venting of LFG, Page 67, Paragraph 3: The text states that passive LFG vents will be installed in discrete locations where methane has been previously measured at 100 percent of the LEL. There are 5 locations listed for passive vents, the cost estimate includes 20 vents. Even if this approach seemed reasonable, there are two locations that had levels close to 5%, GP13-09 and GP16-09, which are likely to see increased levels of methane once a cap is in place. However, the real method for determining where passive LFG vents shall be placed should involve a screening process undertaken during the remedial design process. The Dispute Resolution Agreement stated, “The alternative descriptions of the passive landfill gas system in the revised OU1 FS Report shall include, but not be limited to, information concerning the type, configuration, and locations of each system evaluated, including potential monitoring points, with the final details to be determined as

part of the remedial design process." The Streamlined RI/FS previously stated in Section 1.2.3.1 under LFG and Soil Vapor, "However, empirical data should be collected to confirm the modeled predictions with respect to LFG and to assess soil vapor migration." The last paragraph in this section does say that there will be ongoing explosive gas monitoring, but this is only near buildings/structures. The report also says "exact number and locations of passive vents will be determined during RD and modified as needed in the future based on results of ongoing monitoring." Once the cap is placed there will be no ongoing monitoring except at the few vent locations due to the valid concern of destroying the cap integrity. Additionally, the monitoring should not be done when groundwater levels are falling because fresh air will be drawn into the subsurface. The most dangerous period for surrounding structures is when the groundwater is rising and pushing LFG upward. Please revise.

126. Addressed with additional text unacceptable.

(a) CRA states that sub-slab monitoring locations will be determined as part of the VI Study which addresses the original comment; however, added text and figures need revisions. Figure 2.5 was added to show a conceptual sub-slab venting system; the figure is labeled "Typical Sub-Slab Depressurization" and should be labeled as conceptual. The figure must label the fan "optional" since the text states, "The need for a vapor mitigation system and the determination for whether active or passive venting would be more appropriate will be discussed with USEPA following completion of the work proposed in CRA's VI Work Plan."

(b) A visual indication (manometer) must be included for occupants to easily verify that an active system is maintaining sub-slab vacuum.

(c) The second paragraph on page 100 should be changed so that it does not represent venting as treatment and to address the disadvantages of drawing LFG toward structures. Change the text to the following, "Active venting is fairly easily implemented and is a technology that can be readily implemented in existing buildings. Active venting (such as sub-slab depressurization) uses a fan to continually draw air from the sub-slab and to exhaust to the atmosphere. An advantage of ~~an~~ active ~~treatment~~ *venting* is that it can *be* more reliable at ensuring that soil vapor is continually vented to the atmosphere. *A disadvantage near a landfill, especially one without an active LFG collection system, is that it draws LFG and soil vapor toward occupied structures and that it will not operate if system power or mechanical failure occurs."*

Page 68, Section 2.4.2.3, Soil Vapor, Paragraph 3. Include sub-slab venting locations in the monitoring program that is established.

127. Addressed as directed. Note: The added text states, "Monitoring of the

soil vapor will continue on a quarterly basis beyond the initial 2 years, so long as the threat of exposure remains present. If it becomes apparent, based on building use or based on analytical data that there are no substantial risks from exposure to soil vapor, the frequency may be decreased (pending Ohio EPA and USEPA approval), following the initial 2 years." CRA's response to comments says monitoring frequency will be decreased to semi-annually if there is no identified threat to receptors following two years. Address this discrepancy.

Page 68, Soil Vapor: O&M will need to continue longer than two years. The length of time could be as long as the landfill cap is in place, since even with the additional investigations to address principal threat waste, unidentified sources of methane and VOCs could remain in the landfill material and in groundwater for a long time. The O&M will need to continue until it is demonstrated that contaminant concentrations will remain below acceptable risk levels on a permanent basis. Please revise.

128. Addressed as directed. Note: The last paragraph in Section 2.4.2.4, states, "With respect to the definition of leachate, consistent with USEPA's Terms of Environment, CRA will also monitor the groundwater to assess for potential contaminants resulting from contact with waste or contaminated non-native soil material. Details of this will be provided in the OU2 RI/FS." Add surface water and sediment monitoring since waste placement occurred below the level of these media of concern.

Page 68, Section 2.4.2.4, Leachate Monitoring: This section will need to be revised to address previous comments, especially concerning the potential for leachate generation along the GMR and Quarry Pond Embankments during flood events.

129. Addressed as directed. Note: Lines 4 and 5 on Page 101 should be revised to read: "CRA understands that Valley Asphalt is not connected to the municipal water supply.

Page 69, Section 2.4.2.5, Valley Asphalt Wells: As with LFG, the Valley Asphalt wells will need to be monitored on a quarterly basis until it is demonstrated that contaminant concentrations in the wells will remain below risk-based levels and MCLs on a permanent basis. Also, it is likely that the wells will need to continue to be monitored on some periodic basis after that as part of the statutory five year review process.

130. Addressed as directed in Section 2.4.2.6. Note: Change the following sentence: "Signs will be placed around the Site perimeter that will be visible from all ~~access roads~~ *access points (roads and trails)*." Also, please note that the term hoarding is not typically used in the U.S. and will likely draw questions

from the general public. Please provide some clarification as to the meaning of this term in parenthesis.

Page 69, Section 2.4.2.8, Engineering Controls: Make it clear where temporary and permanent fencing would and would not be considered for use, especially since part of OU1 is occupied by businesses and the GMR recreational trail, and currently vacant areas may one day be redeveloped. If this section is only discussing temporary fencing, then make it clear.

131. *Addressed as directed.*

Additional Comment on Page 70 not part of a previous review comment:

Page 70, second paragraph: The statement that "Although several Site COCs are present at concentrations greater than applicable criteria in shallow soil samples, the concentrations of deeper soil samples (closer to the water table) are generally smaller with increasing depth, indicating that contaminants do not pose a risk to groundwater" is incorrect for two reasons. First, leaching could occur from the shallower soils that exceed the applicable soil criteria, resulting in dissolved concentrations exceeding groundwater criteria migrating down to the water table. Although the deeper soil samples don't exceed the applicable soil criteria, the soil analyses are not sensitive enough in some cases to detect the presence of water containing dissolved COCs exceeding groundwater criteria. For example, the MCL for arsenic is 10 ug/L; leached arsenic (greater than the MCL) migrating downward through the deeper soils would not be detected in the deeper soil samples if less than part-per-million concentrations. Shallow soils exceeding the applicable criteria for some COCs are a threat to groundwater regardless of the concentrations in deeper soil samples. Second, the soils and wastes have not been characterized sufficiently to make a statement that contaminants do not pose a threat to groundwater. This statement must be removed.

Section 2.4.2.9, Institutional Controls, Page 70: Delete these paragraphs and add a discussion on the Ohio Environmental Covenants Act.

132. Addressed as directed. Note: The response to comments states that CRA revised the text as requested, which gives the impression that it addresses the original comment, when in reality the text was revised based on the email dated April 12, 2011.

(a) The text on page 107 states "Additional contingency measures may include increased thickness in some areas, or to cover the MatCon cap with a layer of conventional asphalt, for example in high traffic areas on the Valley Asphalt property." If a conventional asphalt is placed on top of the MatCon cap, then

inspections of the MatCon surface will need to be addressed.

Section 3.0, Development of Alternatives: Please revise this section consistent with previous comments on Section 2; and to include three capping alternatives: MatCon 1.5 percent slope/OEPA SW 3 percent slope; OU-wide OEPA SW 3 percent slope; and OU-wide OEPA SW 5 percent slope (baseline).

A variance will be needed for slopes other than 5 percent. An ARARs waiver will be needed for the MatCon material. The HELP model must be run for each alternative to help support the technical equivalency ARARs waiver. Additional comments on CRA's HELP model are in Attachment 2, and must be addressed throughout the report. The report must also indicate that the slope for the SW cap will be minimized as much as possible based on the results of a stability analysis to be conducted during remedial design, to allow for future use of the property that is compatible with the cap.

135. Addressed with additional text unacceptable. Text was added that states tying together of the OEPA MSW and MatCon caps would be part of the remedial design; however, a conceptual drawing could not be provided since it is stated as proprietary and MatCon does not provide details. Approval of the remedial design will be dependent on knowing the details of the cap design, if details cannot be provided then an alternate method of tying the two caps together must be provided.

Section 3.2.2, Alternative 2, Asphalt and SW Caps, Page 75. MatCon has a proprietary design whereby the edge of an HDPE membrane could be tied to the MatCon by sandwiching it between two layers of MatCon, thus providing a continuous cap without special anchors. (http://www.matcon-inc.com/FAQ.htm#Can MatCon be used in conjunction with conventional geomembranes?) Provide a description and conceptual detail drawing of this.

136. Addressed as directed. Note: The text states, "Additional contingency measures may include increased thickness in some areas, or to cover the MatCon cap with a layer of conventional asphalt, for example in high traffic areas on the Valley Asphalt property." Figure 3.1, does not include any indication that the MatCon cap will be thicker in some areas of the site. Add a statement on the figure that points out the additional thickness that may be necessary.

Section 3.2.2, Alternative 2, Asphalt and SW Caps, Page 75. For point loads on a 4" MatCon cap as generally constructed, the maximum is 100 psi. (http://www.matcon-inc.com/FAQ.htm#What is the load limitation for MatCon?) State what load limits the MatCon cap will be subjected to based on the anticipated traffic and state that this will be calculated again and finalized during the design phase along with other design parameters required for obtaining the

MatCon warranty. What is the maximum load that MatCon can be built to withstand due to the loads at Valley Asphalt? Describe how Valley Asphalt will be required to operate their equipment and pile height to meet the restrictions that will placed on them to protect the cap. B&G Trucking and Barnett Construction can also have heavy equipment traffic. Please address.

138. Addressed as directed. Note: The last sentence in Section 3.2.2, page 118, fifth paragraph is incomplete, "To ensure the warranty of the MatCon Cap, MatCon personnel would participate in the cap". Please complete this sentence.

Section 3.2.2, Alternative 2, Asphalt and SW Caps, Page 75: Describe who is responsible for inspection, repairing, and maintenance of the MatCon and the life span of the product. Describe how pavement striping can affect the surface and what controls will be put in place to prevent damage from this or other actions by onsite businesses.

139. Not addressed and unacceptable. Tying the MatCon cap into the road base will not prevent LFG from migrating off site, the purpose would be to take away some of the preferential pathways. Change the text as follows, "Similarly, at the Site boundaries, a HDPE membrane will be tied from the layers of the MatCon Cap to below the road base of Dryden Road (~~approximately 12 inches~~ *the depth will be determined during design*) to ~~prevent any LFG from migrating from the Site~~ *remove preferential pathways to offsite migration*.

Section 3.2.2, Alternative 2, Asphalt and SW Caps, Page 75: Discuss how the asphalt cap will tie into Dryden Road to prevent LFG from traveling through road base materials and the backfill of utility trenches.

140. Addressed as directed. Note: CRA needs to mention that the portion of the site with a SW cap will also require a variance with respect to slope (proposed at less than 5%).

Section 3.2.2, Alternative 2, Variance/Waivers, Page 75, Last Paragraph: Change the last sentence that reads, "CRA would also request a variance/waiver to reduce the required minimum slope to one percent" to indicate that it is only the asphalt cap that is being discussed and revise the slope to 1.5 percent.

143. Not addressed and unacceptable. The volume of stormwater generated under each alternative was not presented. Determine the amount of stormwater under each alternative to allow comparison to be made.

Section 3, General. Discuss stormwater runoff under all alternatives and how much will be present based on modeling. Also discuss what compliance with ARARs will require, i.e. NPDES permit, sedimentation basin, etc.

144. Addressed as directed. Note: The text states, "For conceptual purposes, the LFG venting system will include either, or a combination of, passive vents with turbine outlets or passive vents with gooseneck outlets." Figure 2.4 only shows a passive vent with turbine outlet, include a note on the figure stating that a gooseneck outlet is possible or also show the optional gooseneck configuration in the figure.

Section 3, General. Consistent with RAOs, this section must be revised to discuss treatment options for the LFG gas being vented from the cap. This may be required by ARARs, and would also be consistent with EPA's Principles for Greener Cleanups cited later in the report (e.g., greenhouse gas emissions). Also, discuss methods to prevent oxygen from entering the landfill when groundwater levels beneath the cap are falling and create vacuum conditions.

146. Not addressed and unacceptable. The added figure is unacceptable. The figure shows the March 2011 flood event, but should also show what the 100-year flood would look like when the cap is in place. The figure does not show a line around the elevations as detailed in the comment below or where they would fall along the slide slope in the capping cross-sections. No figure showing the cap tie-in to the Quarry Pond has been provided.

July 2010 Comment 117 Not Addressed in Section 4.2, Individual Analysis of Alternatives, Pages 79 to 87. This comment must be addressed as previously requested.

(ORIGINAL COMMENT) Section 4.2, Detailed Analysis of Remedial Alternatives, Including All Subsections and Alternatives, Pages 88 to 124: For the asphalt and ARARs-compliant solid waste cap remedial components, please provide additional, specific, accurate and defensible details, including cross-sections, as to what the cap will look like over the steep embankments in the GMR floodway that are comprised of landfill material, and what the cap will look like over the steep landfill material embankments of the Quarry Pond (at least on east, north and west sides of Quarry Pond). The details must include information about what regrading is needed; whether some amount of landfill material in the GMR and Quarry Pond embankments needs to be excavated out and replaced with clean fill before being capped; and what additional measures will be needed since the landfill materials that constitute the GMR embankment are in the GMR Floodway, as well as the 100 year floodway and the 100 year floodplain, and since the Quarry Pond embankments (and other parts of the landfill) are also in the 100 year floodplain. Also, please include additional information as to how the waivers-justifiable asphalt caps would be "tied" into the ARARs-compliant solid waste cap; and how the solid waste cap over the unsubmerged landfilled materials in the Quarry Pond and unsubmerged part of the embankments of the Quarry would "tie" into the remedial components for submerged landfill materials

and contaminated sediments in the Quarry Pond. Also ARARs associated with any of these issues must also be discussed.

According to the RI/FS Work Plan, various flood elevations applicable to the Site are:

Normal Pool: Elevation North of Dryden 713 ft-msl; South of Quarry Pond 709 ft-msl.

10 Year Flood: Elevation North of Dryden 729 ft-msl; South of Quarry Pond 726 ft-msl.

50 Year Flood: Elevation North of Dryden 733 ft-msl; South of Quarry Pond 730 ft-msl.

Also, please include a figure showing a line around these elevations on the Site Survey; and show where they are in the slideslope capping cross-sections requested above. Please use the new transducer data to show approximate elevations for the flooding seen this March, which seems to be an annual or bi-annual flood event.

147. Not addressed and unacceptable (due to numerous errors and misstatements).

(a) Correct the following sentence in Section 4.2.2, page 126, first bullet, and Section 4.2.3, page 135, fourth bullet, "Treat or eliminate high levels of hazardous substances, pollutants, or contaminants (hot spots) to the extent practicable and necessary to protect human health and the environment ~~(if necessary)~~." The wording is redundant since necessary is already used.

(b) Correct the sentence in Section 4.2.2., page 127, third bullet, and Section 4.2.3., page 137, second bullet, "During design it will be confirmed that Valley Asphalt does not use its well as a source of potable water, and continued monitoring will be conducted until ~~the concentrations of contaminants in this well until a statistically identified downward trend or lack of a trend in concentrations can be identified and concentrations~~ *statistically identified downward trend or a stable trend in concentrations can be identified and concentrations* are below MCLs, a cancer risk of 1 x 10-4 or HI of 1."

(c) Correct the sentence in Section 4.2.2., page 128, third paragraph, "OAC 3745-27-08(C)(4)(c) - Cap shall have at least 5 percent grade in all areas except where surface water control structures are located - The MatCon Cap ~~SW cap~~ would have a grade of approximately 1.5 percent and the SW Cap would have a grade of approximately 3 percent minimum instead of 5 percent."

(d) Correct the sentence in Section 4.2.2., page 129, third paragraph, to read, "Given that the Site has not accepted waste since 1996, and that there will be little expected further ~~decomposition of waste material~~ *settlement*, a reduced slope ~~would not~~ *is not expected to* affect the performance of either the MatCon or SW Caps.

(e) Correct the sentence in Section 4.2.2., page 129, fourth paragraph, to read 1.5 percent slope, "Furthermore, through completion of the HELP model, the MatCon Cap with a ~~1~~ *1.5* percent slope will effectively prevent over 99 percent of precipitation from infiltrating the surface, thus demonstrating equivalent performance to the SW Cap."

(f) If no wetland survey has been performed then remove the conclusion already drawn in Section 4.2.2., page 129, fifth paragraph, "~~If they are wetlands, the Large Pond and Small Pond are low-grade wetlands, and anthropogenic in nature~~."

(g) Correct the sentence in Section 4.2.2., page 131, second paragraph, and Section 4.2.3., page 139, last paragraph, to read, "Further investigation is still required to either confirm that ~~the small volumes of~~ principal threat waste will not jeopardize the overall remedy, or, if hot spots are identified, to determine an appropriate response."

(h) The following sentence in Section 4.2.2, page 131, third paragraph, "However, the MatCon does not require the same level of continuous maintenance as the SW Cap" is contradictory to CRA's response to comment #180 that states, "Rather than a complete resurfacing every 30 or 40 years, it is far more likely that small portions of the Site will require annual maintenance, thus equaling the costs of replacement every 30 or 40 years."

(i) Remove the following sentence in Section 4.2.2, page 132, first paragraph, and Section 4.2.3, page 140, fifth paragraph, "~~However, USEPA, 1991 states: EPA expects that few CERCLA municipal landfills will fall into this category; rather, based on the Agency's experience, the majority of sites are expected to be suitable for containment only, based on the heterogeneity of the waste, the lack of reliable information concerning disposal history, and the problems associated with excavating through refuse.~~"

(j) Correct the following sentence in Section 4.2.2, page 132, second paragraph, "With respect to short-term risks to the environment, Alternative 2 requires the removal of all existing vegetation to facilitate the installation of a SW cap over the undeveloped central portion of the Site~~, as opposed to maintaining the existing vegetation~~;…"

(k) Correct the following sentence in Section 4.2.2, page 132, second paragraph, "There will also be a temporary increase in ~~erosion~~ *runoff* until the cap is completed due to the reduction in evapotranspiration."

(l) Replace the following sentence in Section 4.2.2, page 132, second paragraph, "Although the MatCon cap would require substantial resurfacing and repair after approximately 30 years,…" with "The MatCon Cap will require annual maintenance on small portions of the Site that is assumed to equal the costs of replacement every 30 or 40 years;..." This is based on CRA's response to comment #180.

(m) Add the following text to the last sentence in Section 4.2.2, page 132, second paragraph, "Disturbance or exposure of the underlying waste material during resurfacing is unlikely due to the presence of the base layer between the waste and the MatCon asphalt *but will potentially expose maintenance workers to LFG and/or soil vapor. Unlike surficial repairs that may be required on the SW Cap, maintenance of the MatCon Cap will also expose waste materials to stormwater during potential rain events*."

(n) Correct the following sentence in Section 4.2.2, page 133, last paragraph, "Alternative 2 requires ~~no~~ special techniques, materials, ~~or~~ and labor to construct the *MatCon* cap~~s~~ and to install the LFG and soil vapor passive vents *through MatCon, tie-in the SW Cap HDPE liner with the MatCon Cap, and use special mastic-coated geotextile to seal building foundations and other structures*." It cannot be said that there are no special techniques, materials, or labor when response to comment #135 states that tying in the SW Cap HDPE liner is "a proprietary design and details are not published by MatCon", a special mastic coated geotextile is needed, a design density (not common to normal asphalt) is needed, "additives for the asphalt will need to be supplied by MatCon, Inc. rather than obtained locally" (page 134), and " MatCon, Inc. personnel would need to be present during the cap construction" (page 133).

(o) Remove the following sentence in Section 4.2.2, page 133, last paragraph, "~~However, the techniques required for the installation of a MatCon cap are not technically challenging or especially onerous.~~" This is not known to be true since details of the SW and MatCon cap tie-in can't be provided due to proprietary reasons. It is not known if installation will be technically challenging or onerous.

(p) Explain the amount of O&M assumed for asphalt resurfacing in Section 4.2.2, page 134, second paragraph under Cost heading that states, "The annual cap maintenance costs are primarily for resurfacing the asphalt and vegetation and vermin control, as necessary." CRA's response to comment #180 states that the MatCon Cap will require annual maintenance on small portions of the Site that is assumed to equal the costs of replacement every 30 or 40 years.

(q) Correct the following sentence in Section 4.2.3, page 135, first bullet, "Construction of cap places a protective ~~would effectively place a~~ barrier between the underlying waste and contaminated fill material and receptors at the surface, thereby eliminating the direct contact exposure.

(r) Correct the following sentence in Section 4.2.3, page 135, third bullet, "The drainage channels will direct most of the stormwater collected to stormwater retention ponds ~~(i.e., The Large Pond and Small Pond)~~, where the water would collect allowing sediments to fall out of suspension.

(s) Correct the sentence in Section 4.2.3, page 138, second paragraph, to read, "Given that the Site has not accepted waste since 1996, and that there will be little expected further ~~decomposition of waste material~~ *settlement*, a reduced slope ~~would not~~ *is not expected to* affect the cap performance.

(t) Correct the sentence in Section 4.2.3, page 138, first paragraph under the heading Short Term Effectiveness, to read, "Therefore, there will be a short-term reduction in erosion control, specifically due to temporarily reduced soil cover and a temporary increase in ~~erosion~~ runoff due to reduced evapotranspiration over the short-term.

(u) Correct the sentence in Section 4.2.3, page 141, first paragraph, to read "Alternative 3 will also immediately render the Site unusable *for the existing businesses*, forcing existing businesses ~~to cease operations and~~ to relocate ~~or close permanently~~.

(v) Correct the sentence in Section 4.2.3, page 141, third paragraph, to read "Additionally with respect to short-term risks to the community, Alternative 3 poses moderate risks to local residents, and employees and patrons of the adjacent businesses (on-Site businesses will be ~~closed~~ *relocated and therefore not at risk*) during active remediation."

Section 4.2, Individual Analysis of Alternatives, Pages 79 to 87, and Section 4.3, Comparative Analysis of Alternatives, Pages 87 to 95. These sections and subsections will need to be completely re-written consistent with previous comments, including comments concerning the media and risk pathways to be addressed, capping options, passive venting options, LFG treatment options, embankment options, material that will need to be excavated or treated, monitoring, etc, as well as OEPA's comments regarding ARARs.

These sections of the FS will also need to be rewritten to provide significantly more detail in sections as to how various alternatives and remedy components will meet the statutory requirement for overall protection of human health and the environment, as well as EPA's criteria for long-term effectiveness and short-term effectiveness. This analysis is especially critical for, but not limited to, options

that allow current businesses to remain on-site, and which will allow for appropriate reuse over vacant areas; as well as options that will be impacted by erosion and flooding. Adjacent businesses and houses, and the GMR and recreational area adjacent to the site must also be considered. Part of this discussion should include specific details on the RAOs, and thoroughly explain how each component of the remedy alternatives being considered would or would not address each RAO.

These sections will need to be rewritten to provide significantly more detail explaining what specific provisions of OEPA's ARARs will need to be waived for a MatCon cap, including the specific citation and a full text description of what OEPA's actual requirements are, and provide a lot more detail on how the MatCon cap component will meets the technical equivalency of these requirements and support a waiver.

Also, even though groundwater is not part of OU1, there must be a discussion on how capping of the site could make any groundwater options involving source removal, installation of additional monitoring wells, or injection treatments more difficult to implement, and what will be done to protect and repair the cap during the OU2 investigation, and, if needed, subsequent construction. This is especially true in areas where the FML is to be placed.

150. Not addressed and unacceptable. CRA mentions that regrading around the businesses will be required, but do not stress the depth or amount of material that requires removal if existing elevations are to be maintained following MatCon placement.

Section 4.2.2, Alternative 2, MatCon/SW Cap, Page 82, Paragraph 6. CRA needs to mention the short term risks with removing enough surface material, up to 10" depth, around the businesses to get an asphalt cap installed.

153. Not addressed and unacceptable. While some of the special requirements of a MatCon Cap were added, CRA still asserts "Alternative 2 requires no special techniques, materials, or labor to construct the caps". Correct the following sentence in Section 4.2.2, page 133, last paragraph, "Alternative 2 requires ~~no~~ special techniques, materials, ~~or~~ and labor to construct the *MatCon* cap~~s~~ and to install the LFG and soil vapor passive vents *through MatCon, tie-in the SW Cap HDPE liner with the MatCon Cap, and use special mastic-coated geotextile to seal building foundations and other structures*." It cannot be said that there are no special techniques, materials, or labor when CRA's response to Comment 135 states that tying in the SW Cap HDPE liner is "a proprietary design and details are not published by MatCon", a special mastic coated geotextile is needed, a design density (not common to normal asphalt) is needed, "additives for the asphalt will need to be supplied by MatCon, Inc. rather

than obtained locally" (page 134), and " MatCon, Inc. personnel would need to be present during the cap construction" (page 133).

Section 4.2.2, Alternative 2, MatCon/SW Cap, Page 83, Paragraph 3. The statement that Alternative 2 requires no special techniques, materials, or labor to construct the caps does not seem valid when talking about the MatCon cap.

Include information on the special compaction, material, and labor for a MatCon cap.

155. Addressed as directed. Note: The comment originally addressed the fact that Alternative 3 had this language while Alternative 2 did not, in the current document the sentences in both sections seem to be out of place.

MatCon/SW Cap, Page 83, Cost, Paragraph 1: Add "Additionally, the Small and Large Ponds would need to be backfilled to grade (with clean fill for materials that would be in contact with the water table), prior to implementing any remedy."

163. Not addressed and unacceptable. The last sentence in Section 4.3.1 on page 148 still states "Alternatives 2 and 3 provide a similar level of overall protection of human health and the environment." The fact that Alternative 3 will have no permanent on-site receptors make control of LFG and soil vapor much more protective of human health. See next comment for additional details.

Section 4.3.2, Overall Protection of Human Health and the Environment, Page 87 to 88. This assessment considers direct contact exposure as the relevant exposure pathway. Revise the assessment to include exposure to LFG and indoor air, not just landfill materials, to the on-site businesses, since these risks widely vary between alternatives. Overall protection of human health and the environment must also be revised to discuss all relevant pathways (i.e., risks to groundwater, the adjacent recreational area, GMR and Quarry Pond surface water and sediment). See Comment 147.

164. Addressed with additional text unacceptable.

(a) The second paragraph in Section 4.3.1 reads, "Alternative 1 (no action) has the lowest degree of long-term effectiveness and permanence." Section 4.3.3 should address long-term effectiveness and permanence. Correct this section so that is only discussing overall protection of human health and the environment.

(b) The second column in all the Tables in Section 4.3.1 are titled Long-Term Effectiveness and Performance – Direct Contact, change them to Overall Protection of Human Health and the Environment. Also change all the comments in the tables to deal with overall protection of human health and the environment instead of long-term effectiveness and performance [permanence].

(c) Section 4.3.1, page 146, first table, has the rating for alternatives 2 and 3 as equal. Change the Ratings in the Table for LFG and soil vapor control to low for alternative 2 and medium for Alternative 3. The fact that Alternative 3 will have no permanent on-site receptors make control of LFG and soil vapor much more protective of human health.

(d) The text associated with this table also states, “Sub-slab soil vapor will be vented from beneath the buildings to the atmosphere through active venting systems.” The rest of the document states that active versus passive vented will be evaluated in the VI study. Please make this consistent with other sections.

(e) Section 4.3.1, page 145, first table, based on the statement “At present, neither Alternative 2 nor Alternative 3 addresses this RAO.” Change the Long-Term Effectiveness and Performance – Direct Contact Ratings in the Table for hot spot remediation to low for all alternatives.

(f) Section 4.3.1, page 146, third table, based on the fact that the contaminated wetland areas are not removed or treated, change the ratings in the Table for hot spot remediation to medium for Alternatives 2 and 3.

(g) Section 4.3.1, page 147, first table, based on the fact that Valley Asphalt would no longer be located on the site under Alternative 3, change the table to reflect the rating for Alternative 3 to high and delete the Comment “~~Monitoring to ensure that Valley Asphalt personnel are not exposed to contaminants~~. ‘

Page 87, Overall Protection of Human Health and the Environment. The statement “Alternatives 2 and 3 provide a similar level of overall protection of human health and the environment” needs to be revised based on LFG and indoor air impacts to on-site businesses that will remain under Alternative 2. What will be done to make sure current and potential future receptors are thoroughly protected (in detail)?

164. Addressed with additional text unacceptable.

(a) Section 4.3.2 has the following introduction, change it to “For the purpose of this comparison, alternatives that require ~~no~~ *only* variances~~/waivers~~ are assigned a rating of "High", whereas alternatives that require ~~few variances/~~ *ARAR* waivers ~~that would likely be granted (e.g., only slope reduction)~~ are assigned a "~~Moderate~~*Medium*" rating, and alternatives that do not comply with ARARs or require more variances/ waivers that are unlikely to be attained are assigned a "Low" rating.” Change the text from Moderate to Medium, or vice-versa, to match the rest of Section 4.0. The MatCon cap, Alt. 2, was incorrectly rated High even under the original text where it should have been medium along with Alt 3. The two alternatives should not be rated equally since there is a huge difference between them as shown in the following text from this section, “Assuming

substantive requirements for a grade variance are met during remedial design, Alternative 3 complies with ARARs. Assuming substantive requirements for obtaining a grade variance are met during remedial design, Alternative 2 would still require three NCP waivers to implement the MatCon Cap design." Change the rating for Alternative 2 to Medium and leave the rating for Alternative 3 at High.

(b) Section 4.3.3, page 151, paragraph 2, refers to the MatCon cap and states "As the surface can be inspected regularly, cracks and other deficiencies can be identified sooner than in if a SW Cap had been used." The text on page 107 stated "Additional contingency measures may include increased thickness in some areas, or to cover the MatCon cap with a layer of conventional asphalt, for example in high traffic areas on the Valley Asphalt property." If conventional asphalt is placed on top of the MatCon cap, then inspections of the MatCon surface cannot be performed.

(c) Section 4.3.3, the inspection and maintenance of the building venting systems under Alt. 2 is not addressed. Regular inspections of building floors for developing cracks, regular indoor air monitoring, maintenance of and response to gas alarms, and other factors required for maintaining a sub-slab venting system are a huge undertaking that is omitted from discussion. The same is true for the LFG monitoring requirements for Alts. 2 and 3.

(d) Section 4.3.3, page 151, second paragraph, remove the sentence, "~~Therefore, the thickness of the barrier is irrelevant.~~"

(e) Section 4.3.3, page 151, third paragraph, the description of the rating system seems to be dealing only with residual risk (based on magnitude of residual waste [waste left behind]), and not including the adequacy and reliability of the controls (cap, LFG vents, sub-slab venting systems). Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA describes the assessment of adequacy and reliability of the controls as:

> *This factor assesses the adequacy and suitability of controls, if any, that are used to manage treatment residuals or untreated wastes that remain at the site. It may include an assessment of containment systems and institutional controls to determine if they are sufficient to ensure that any exposure to human and environmental receptors is within protective levels. This factor also addresses the long-term reliability of management controls for providing continued protection from residuals. It includes the assessment of the potential need to replace technical components of the alternative, such as a cap, a slurry wall, or a treatment system; and the potential exposure pathway and the risks posed should the remedial action need replacement.*

Change this portion of the paragraph to read, “For the purpose of this comparison, alternatives that would prevent exposure to the fill and waste and that have adequate and reliable controls ~~regardless of contaminant levels~~ are assigned a "High" rating, whereas alternatives that *can only minimize* ~~would prevent~~ exposure ~~to more potentially contaminated waste and minimize exposure to inert waste~~ *or have inadequate and unreliable controls* are assigned a "~~Moderate~~Medium" rating, and alternatives that do not minimize exposure to wastes *and have inadequate and unreliable controls* are assigned a "Low" rating.”

(f) The second column in all the Tables in Section 4.3.3 are titled Long-Term Effectiveness and Performance – Direct Contact, change them to Long-Term Effectiveness and Permanence.

(g) In Section 4.3.3, the table rates the cap component of OU1 only and not other components of OU1 such as the LFG vents and sub-slab venting systems. Change the ratings to assess all control components of OU1. Alt. 1 should be rated Low, Alt. 2 should be rated Medium due to sub-slab venting system maintenance and potential for failure of system components or cracks in floors, buildings located on the cap, workers on the cap, etc., and Alt. 3 should be rated High since only the cap and LFG vents are present and engineering controls will prevent entry onto the site and near LFG vents, etc.

(h) Section 4.3.3, page 151, last paragraph, reads, “Both Alternative 2 and Alternative 3 would employ cap designs rated "High". As both Alternative 2 and Alternative 3 would employ similar institutional controls, engineering controls, and monitoring program, they are both similar in this regard. Therefore, with respect to addressing RAOs with respect to Site COCs, both active remedial alternatives are comparable and offer a high degree of protection with respect to the long-term effectiveness.” Change the paragraph since both caps are not rated high. While both caps contain the same residual waste, one cap has buildings and workers located on its surface that puts workers in closer proximity to LFG and sub-slab vent emissions. A crack in the asphalt cap or building floor puts employees and customers in potential contact with emissions. Under Alt. 2 the cap is not the only control being rated. The building foundations and floors are also part of the remedy controls. The Respondents did not design the structures, had no control of the construction QA/QC as they were being built, do not know what compaction readings were when they were built, do not know what concrete mix designs were used, can’t verify all slab thicknesses, can’t locate plans or construction notes for many of the structures, and may not know the location of all in-use or abandoned utility (public and private) entrances. Since most details of this important control feature are only being assumed, it cannot be rated High.

Page 90, Table of Long Term Effectiveness: See Comment 147. This section and table will need to be re-written and re-evaluated.

165. Addressed with additional text unacceptable.

(a) Section 4.3.4, first paragraph: Remove the sentence "~~Rather, construction of a cap will restrict exposure to potential receptors~~" and replace it with what should be evaluated in this section "Rather, construction of a cap will limit mobility of waste and contaminated soil."

(b) Section 4.3.4, second paragraph: Not addressing LFG by saying, "As the need for active or passive venting systems has not yet been confirmed, a comparative analysis cannot be completed at this time" is unacceptable. Although by the end of the paragraph the systema are assumed to be the same and are being compared, "Therefore, for comparative purposes, it is assumed that Alternative 2 and Alternative 3 would employ similar LFG venting systems." Whether a system is active or passive the goals are known – to prevent migration off site, to reduce concentrations in onsite buildings, etc. Include a discussion based on RAOs (i.e., preventing it from going off site and into buildings).

(c) Section 4.3.4, third paragraph: Hot spots are not adequately addressed within this section. The following sentence requires edits, "Further investigation is still required to either confirm that ~~the small~~ volumes of principal threat waste will not jeopardize the overall remedy, or~~, if they are deemed to be hot spots,~~ to determine the appropriate response." First, delete the word "small" since an investigation has not been completed to determine this, and second, principal waste threats are hot spots.

(d) Section 4.3.4, third paragraph: The text is not addressing hot spots with respect to OU1 without considering impacts on OU2 when it states, "As the hot spots will be adequately addressed (either through containment or through direct treatment), there is little risk of future exposure." Discuss how hot spot removal will affect, positively or negatively, options for achieving RAOs under OU2.

(e) Section 4.3.4, address soil vapor in this section.

(f) Section 4.3.4, third paragraph, delete the EPA 1991 quote at the end of the paragraph.

Page 92, First Table: See Comment 147. This section and table will need to be re-written and re-evaluated.

166. Addressed as directed. See Comment 165 concerning re-write.

Page 92, Paragraph 1. See Comment 147. This section will need to be re-written and re-evaluated. However, the statement that Alternative 1 (no action) would not reduce volume of LFG is not accurate. The volume of LFG is reduced the same way it is under current Alternatives 2 and 3 except it vents through an unknown path of least resistance instead of the LFG gas network installed with

the cap.

168. Addressed with additional text unacceptable.

(a) Section 4.3.5,states, “Alternative 3 entails greater disturbance of ~~the waste and contaminated soils and~~ fill material, as more *fill material* ~~significant grading~~ will be required to achieve a 3 percent slope across the entire Site.” Alternative 3 should not disturb waste unless consolidation is planned. Alternative 2 will disturb more soil, waste and fill since the areas around the buildings will need to be lowered to install the MatCon cap.

(b) The document does not discuss consolidation under each alternative. The only two places consolidation is mentioned in the main text is Section 2.4.2.1,page 88, “Any non-hazardous waste materials that need to be moved during cap construction will be consolidated within the cap area. Any hazardous waste materials that are removed during cap construction will be properly characterized and disposed off Site at an appropriately licensed location” and in Section 5.0, Summary, page 159, “Removal of surficial waste materials and off-Site disposal or on-Site consolidation.” Add more details on proposed consolidation under each alternative.

(c) Section 4.3.5,states, “Alternative 3 poses *low* ~~equal moderate~~ risks to residents at *on and* off-Site locations~~, and high risks to employees and owners of the active businesses along Dryden Road and Valley Asphalt, as these businesses will be forced to close or relocate~~.” If businesses are relocated then there can be no risk to the employees and owners. There might be inconvenience, but that is not one of the analysis factors evaluated under short-term effectiveness. Analysis factors under short-term effectiveness are protection of community during remedial actions, protection of workers during remedial actions, environmental impacts, and time until remedial response objectives are achieved (EPA 1991).

(d) Section 4.3.5, the table should show Alt. 1 with a rating of medium and comment “Relies on existing conditions. No risks from remedial actions but remedial response objectives will not be achieved.” Alt. 2 will have a rating of medium with comment “Community risk during remedial actions, with considerable risk to onsite businesses. Remedial response objectives will be achieved following construction.” Alt. 3 will have a rating of high with comment “ Low community risk during remedial actions, since no onsite businesses. Remedial response objectives will be achieved following construction.”

(e) Section 4.3.5, paragraph 3, page 154, first sentence is incorrect, “Alternative 2 offers the highest degree of short-term effectiveness with the lowest short-term risks. This is due mainly to the fact that active businesses can remain operational during implementation of the remedy.” The fact that the businesses

are open during remedial activities puts their workers at the highest risk, the lowest risk comes from the relocation of businesses. The term "risk" is being used incorrectly throughout this section.

(f) Section 4.3.5 needs to be re-written.

Page 93, Paragraph 3. The statement "Technically, Alternative 2 and 3 can both be implemented within similar time frames, i.e., approximately 3 years" seems to be inconsistent with the earlier statement that Alternative 2 could be up to an entire year less (33%) to construct.

169. Addressed with additional text unacceptable.

(a1) Section 4.3.6, paragraph 1 states, "Construction of the SW Cap for Alternative 3 will require the closure and, where possible, relocation of the active businesses. In addition, the construction of a cap will require the importation of significant quantities of non-native soil material by truck, which will impact the local community and ~~both on- and~~ off-Site businesses." To verify this statement, compare the number of vehicles from Valley Asphalt and the other relocated businesses per day with the number of trucks providing fill material per day.

(a2) Show suspected haul routes and the routes taken by local residents to see if they intersect.

(a3) Under Alt. 3 truck traffic will no longer affect relocated businesses.

(b) Section 4.3.6, page 156, paragraph 2 states "Alternative 2 is the most implementable alternative, as only a MatCon asphalt cover is required for existing businesses." The relocation of businesses does not automatically make Alt. 3 less implementable than Alt. 2 since the analysis should not be relying on a single criteria (relocation) for making this determination.

(c) The statement "Alternative 3 would require the *relocation* ~~closure~~ of all of the active businesses within OU1 and will, therefore, be more difficult to implement. Although not technically infeasible, requiring a business to close and relocate places a significant burden on the business, due in part to the difficulty in finding/constructing a suitable site in a suitable location, lost operating time (during relocation), potential loss of clients/customers who are unaware of the business relocation, and the inconvenience to the business operators who would be forced to relocate." The last sentence above was added to address comment #169, it does not give any reason to justify a low implementability rating other than saying that moving is inconvenient. This should be moved to the cost section, it would seem to fit there better since it is assumed that the Respondents would reimburse for much of this expense and it has more impact on cost than implementability. Relocation falls under direct capital costs.

(d) Section 4.3.6, coordination with OU2 is not addressed. EPA 1991, specifically states that the ease of undertaking additional remedial action must be considered, including "a discussion of what, if any, future remedial actions may need to be undertaken and how difficult it would be to implement such additional actions. This is particularly applicable for an FS addressing an interim action at a site where additional operable units may be analyzed at a later time." Address how OU1 and OU2 will be coordinated.

(e) Section 4.3.6 states "MatCon personnel would need to be present during the cap construction for installation." Provide some verification that specialists necessary to repair and maintain the MatCon cap will also be available in 30+ years. In light of the company having been sold/purchased several times,discuss who owns the patents, how have the patents been handled, how is the manufacturing supply stream maintained, what other factors may make service personnel or materials scarce?

(f) Section 4.3.6 needs to be re-written taking into account: *Technical Feasibility* (ability to construct and operate technology; reliability of technology; ease of undertaking additional remedial action, if necessary; and monitoring considerations), *Administrative Feasibility* (coordination with other agencies), *Availability of Services and Materials* (availability of treatment, storage capacity, and disposal services; availability of necessary equipment and specialists; and availability of prospective technologies).

Page 93, Last Paragraph. Explain why alternatives that will force existing businesses to close and relocate are assigned a "Low" implementability rating. Although this is not what Moraine and existing property owners and businesses want, it seems that the relocation of a business is not beyond being implementable. Please discuss.

170. Not addressed and unacceptable.

Section 4.3.6, page 156, paragraph 1 states "Therefore, comprehensive remedial alternatives analyzed in Alternatives 2 and 3 require no special techniques, materials, or labor to construct, and thus major technical, administrative, or schedule difficulties are not expected." Just because Alternative 2 is implementable, that does not mean it requires no special techniques, materials, or labor to construct. The techniques, materials, and oversight personnel are unique and it should be stated thus. Change this.

Page 94, Paragraph 3: See earlier comment on the statement that Alternative 2 requires "no special techniques, materials, or labor to construct".

176. Not addressed and unacceptable. The table was re-titled "Summary of Required ARAR Waivers" and the variance was not included; re-title as

"Summary of Required ARAR Waivers/Variances" and add the slope variance.

Table 3.2, Summary of Required ARAR Variances: The table does not list the variance for the SW cap slope.

179. Not addressed and unacceptable.

(a) Table 4-1 assumes 2% of capital costs for O&M under Alt. 2 and 3. This needs to take into account the differences in monitoring under Alt. 2 due to businesses remaining on site.

(b) Appendix H: Table H-1: Equipment mobilization costs are not listed. Equipment storage and office trailer costs are not listed.

(c) Table H-2: Only 5 cubic yards of shrub material is listed as needing mulched. Based on the site being 26 acres in size and the text on page 38 (referring to earlier clearing) stating "Vegetation at the Site has since substantially regrown" this number should be adjusted upward.

(d) Table H-3: Details on the MatCon cap are not listed, the cost is assumed to include the gravel base and the 4" MatCon layer. The text on page 107 stated "Additional contingency measures may include increased thickness in some areas, or to cover the MatCon cap with a layer of conventional asphalt, for example in high traffic areas on the Valley Asphalt property." It is unlikely that increased thicknesses were taken into account when generating costs. If a conventional asphalt is placed on top, then inspections of the MatCon surface will need to be addressed.

(e) Table H-4: Add the cost of LFG alarms and additional monitoring for the onsite businesses for Alt. 2.

(f) Table H-6: The removal of 12 inches or greater of material to allow for MatCon installation was not included in this cost. Add this cost for Drainage Cut to Table H-6.

(g) Table H-6: Grading for the MatCon cap around buildings, Dryden Road, and utilities, with removal of existing asphalt or concrete is listed at $4,000 per acre but grading for the SW cap is listed at $6,000 per acre. Explain the difference in cost and how grading for the MatCon cap can be less when consolidation will be occurring.

(h) Table H-7: The cost for annual resurfacing of MatCon appears low based on EPA/540/R-03/505 (July 2003) listed "the cost of the binder per acre of cover is $77,400 (current published catalog pricing), and the cost of aggregate and bitumen per acre ranges from $3,000 to $10,000, depending on the local cost of aggregate." This 2003 cost of $80,400 to $87,400 per acre is for materials only.

The cost does not include the cost to remove an old section of asphalt, regrade the subbase, labor and equipment costs to lay the base, etc. Adjust the cost upward to reflect these costs.

Table 4.1, Estimated Remedial Costs. It is not understood how the cost for vegetation control, groundwater sampling, leachate, soil vapor, and LFG monitoring, and general Site maintenance is more under Alternative 3 than Alternative 2. Alternative 2 includes monitoring of indoor air at the businesses and additional LFG monitoring and maintenance of gas alarms, which Alternative 3 does not. It is not understood how vegetation control differs under O&M and cap maintenance. Please revise.

181. CRA's Response to Comments indicates this information has been provided but it is not clear where and this information still could not be found in the RI/FS.

Tables. Please include a table showing CRA's hazardous waste analysis results for CRA's TCLP and other waste characterization sampling, and the Valley Asphalt data results (TCLP and regular analysis). This data could not be found in Table 1.4, Soil Sampling Analytical Results.

183. Not addressed as directed. The note is included on Figure 1.2, but the area is not shown, nor is this included as a data gap or discussed in the FS.

Figures. There is no topographic map. Please include the topographic map showing OU1 in Figure 1 of the Dispute Resolution Agreement as a Figure, and show the area north of the recreational trail that will be investigated during remedial design to determine if this area contains solid waste and will be included under the OU1 cap. This investigation and area should also be discussed as a data gap, as the media to be addressed, and in capping alternatives discussions.

186. Addressed as directed but new issue. Appendix G states that the vegetative surface layers were modeled as "Vegetation (i.e., ground cover): "Good Stand of Grass" for existing conditions (Alternative No. 1) and SW Cap (Alternative No. 2 and No. 3) [not applicable to the MatCon Cap (Alternative No. 2)]." Table 1 in Appendix G shows the MatCon cap was modeled with a 6 inch vegetative layer at 3.1X10-3 cm/s. This is incorrect, please revise.

HELP Model, General. A waiver from the requirement for a 5% slope for a solid waste cap and 1.5% slope on an asphalt cap has been mentioned in the text; however, the HELP model does not show all of these scenarios. The HELP model should run calculations on all scenarios (see previous comments) and present these findings in the text. Please address, and see additional comments in Attachment 2.